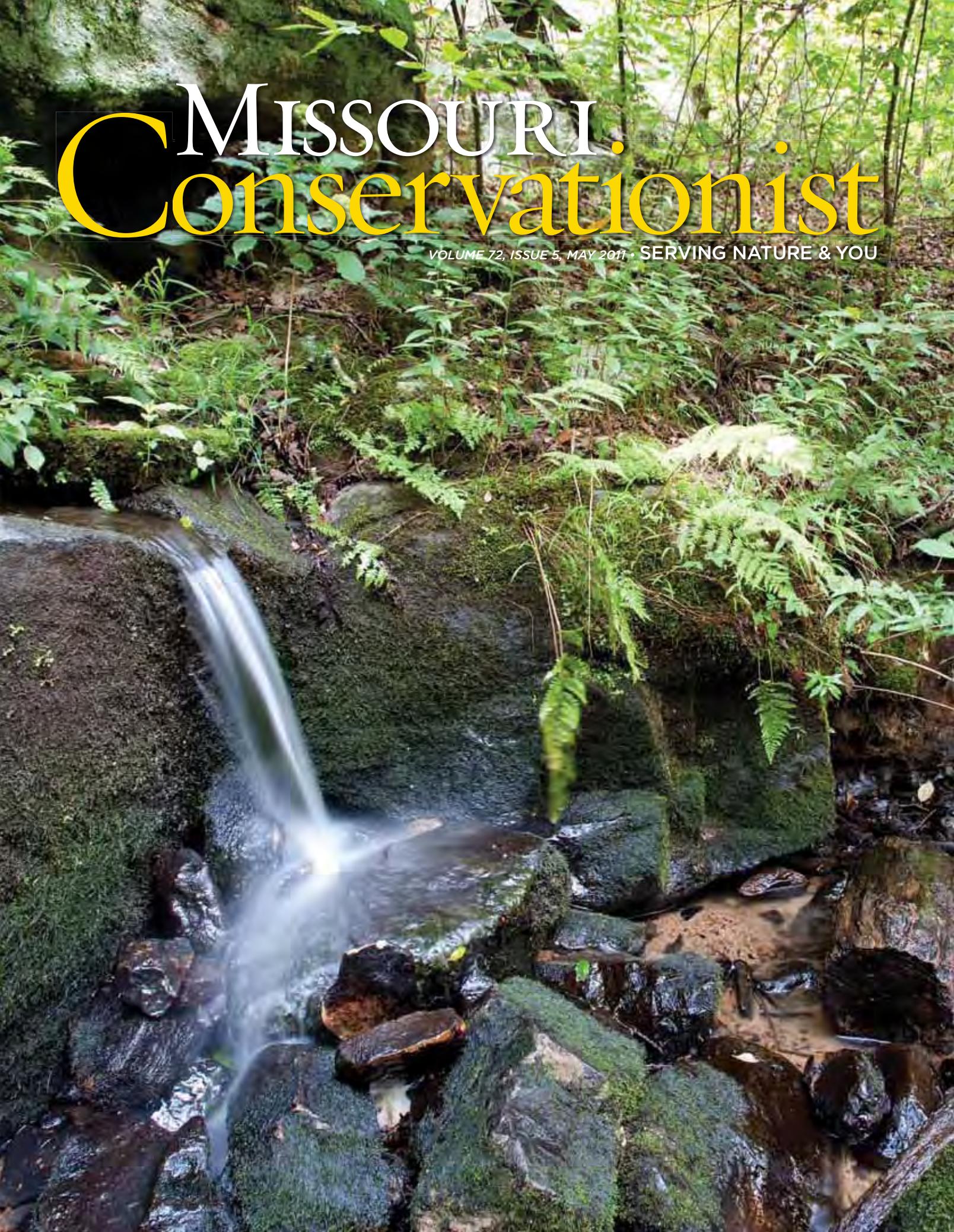


MISSOURI. Conservationist

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NOTE TO OUR READERS

Citizens Lead the Way

Spring is a great time to enjoy the outdoors. It is easy to observe citizens of all ages engaged in activities including wildlife watching, canoeing and boating, target shooting, fishing, hunting or hiking.

Missourians are tied to the outdoors. Results from a 2009 survey document that 91 percent of adult Missourians indicate they are interested in our state's forest, fish and wildlife resources.

An important point to note is that citizens continue to put their "interest" in forest, fish and wildlife resources into action. Annual requests seeking Department technical assistance for restoring or enhancing natural habitats continue to grow. Each year staff complete thousands of on-site contacts with private landowners related to restoration and habitat improvement projects ranging from grassland to woodland to aquatic systems and everything in between. In addition, habitat tours, workshops and educational events held across the state remain in high demand. As 93 percent of Missouri's landscape is in private ownership, these facts are both encouraging and important for long-term conservation success.

Citizen volunteerism, focused on advancing conservation efforts, is another example of putting "interest" into action. Last year, thousands of dedicated citizen volunteers donated more than 250,000 hours to advance conservation. Citizen volunteer efforts are as diverse as Missouri's landscape. Examples of volunteer activities include assisting at nature centers, teaching hunter education classes, Stream Team projects, forest health inventories, assisting with law enforcement efforts, completing maintenance at trails and boat ramps, and conducting educational workshops. Volunteers expose youngsters to the marvels of the outdoor world, clean up litter on Missouri's rivers and streams, assist with operation and maintenance of shooting ranges, and



regularly help citizens to enjoy a safer outdoor experience. The benefits from volunteer efforts are having positive, lasting impacts at the individual, community and state levels.

Volunteers are highlighted in this issue of the magazine through their waterfowl work and reporting black bear and Stream Team efforts. For years volunteers have helped the Department monitor quail populations

and have assisted with monitoring wild turkeys. Citizens and the Department working together is a foundational stone in Missouri's successful conservation program.

Missouri is blessed to have citizens dedicated to enhancing forest, fish and wildlife resources. Citizens' continued commitment to improving our natural resources makes Missouri a national leader in conservation.

For habitat-related assistance or information regarding volunteer opportunities in your area, please contact a local Department regional office (see Page 3 for phone numbers). As always, I look forward to hearing from citizens. I hope you enjoy this month's Reader's Photograph of the two red foxes by Gary Marquart of Washington. Please keep sharing your conservation success stories and outdoor photographs. Together, citizens and the Department are advancing conservation.

A handwritten signature in black ink, enclosed in an oval. The signature reads "Robert L. Ziehmer".

Robert L. Ziehmer, director

OUR MISSION: *To protect and manage the fish, forest and wildlife resources of the state; to serve the public and facilitate their participation in resource management activities; and to provide opportunity for all citizens to use, enjoy and learn about fish, forest and wildlife resources.*



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by Tamie Yegge, photos by David Stoner

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by Max Alleger

A multifaceted approach is needed to improve bobwhite populations.

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by Gladys J. Richter

Some of Missouri's most interesting native plants enjoy life on the edge.

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by Greg Stoner

A "sport fish" should not be defined by species alone.

Cover: Pickle Spring by David Stoner

Above: Bobwhite quail by Noppadol Paothong

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OL' RED-BREAST

Your March article on robins [Just a Robin;

Page 16] brought spring early to my Alaskan home, where I have resided since 1976. Born and raised in Missouri, I always looked forward to the robin's first chirp to herald spring. Up here it is May before we see those delightful characters foraging for nesting materials and safe home sites. If all goes as it usually does at our rural cabin, they will stake out their secure home again in the rafters of our guest A-frame and the birch trees visible from our cabin window. Thanks for featuring old red-breast, and know their antics, like your magazine, bring a smile of appreciation to this aging St. Louie woman.

Brenda Rodgers, Eagle River, Alaska



Reader Photo

WILD BACKYARD

Gary Marquart, of Washington, captured this image of foxes. "The den was up the street from me in a neighbor's backyard," said Marquart. "He told me about them in the spring, so I went up there to try to get some shots, but wasn't successful. Then, one Sunday morning I looked out my kitchen window and there stood a fox in the backyard!" There were a total of four foxes that frequented Marquart's backyard for much of the rest of the summer. Marquart spends most of his free time taking nature photographs. He has photographed eagles in Clarksville and frequents Shaw Nature Reserve in the spring. He also enjoys hiking and fishing.

TREE-MENDOUS PROJECT

My admiration for the MDC grows monthly as I read each new issue of the *Missouri Conservationist*. The varied and extensive undertakings of the Department are truly impressive, as reflected in the article by Paul Hagey regarding the Missouri Ozark Forest Ecosystem Project [*The Mosaic of an Ozark Forest*; March]. The MDC's ranking as one of the nation's best conservation departments is justly deserved.

Gordon Kelley, Excelsior Springs

WELCOME BACK

I enjoyed seeing the article *Conserving At-Risk Species* in the February issue [Page 8]. Of particular interest to our family was the trumpeter swan. We have a property south of Marshfield that has a 5-acre lake. The lake gets a lot of farm runoff, which results in heavy growth of

aquatic plants and duckweed and is optimal for trumpeter forage.

In 2009, we had a trumpeter visit on a few occasions. This past year, he stayed all summer. He made several flights during the Youth Deer Hunt, much to our delight. His enormous wingspan, thunderous wing-beats and striking whistling sounds as he took off and circled awed us as we watched from our tree stand. On Sunday of the Youth Hunt, he circled wider than he had previously, then turned and headed south. We're hoping he returns in the spring with a female. If so, the vegetation we have long cursed for its effect on our fishing may not seem so bad.

Nolan C. Snider, Marshfield

HOT TOPIC

Bill Altman and Paul Hagey's *Prescribed Fire: A Management Tool* article in the February issue took me back 40 years to several visits my wife and I made to visit her uncle, the late Dr. Harold Biswell, in Berkeley, Calif.

Dr. Biswell learned to appreciate the conservation of our natural environment as he grew up on the family farm in Howard County, Mo. (The farm, which my wife, Robin Biswell Pettijohn, and I own and continue to enjoy, has been "in the family" for more than 170 years.) After attending Central Methodist College in Fayette, he went on to earn his doctoral degree at the University of Nebraska, work for the U.S. Forest Service in the southeastern U.S., and finally settled in as a professor at the University of California-Berkeley. During his career, Dr. Biswell became a world-renowned leader in what has become known as "fire ecology." This "Missouri boy" fought many of the early and controversial battles in what has become a widely accepted method of preserving our ranges, glades and forest systems.

Dr. James Pettijohn, professor
Missouri State University, via Internet

CORRECTION

The caption on Page 13 of the March issue reads "Common yellow-throated warbler." It should have read "Common yellowthroat," as it does on the photo. We regret any confusion.



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Discover more about nature and the outdoors through these sites.

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Kid's site: www.XplorMo.org
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NEWS & EVENTS

by Jim Low



MDC Contributes \$5 Million to Waterfowl Conservation

Ducks Unlimited (DU) recently honored Missouri for contributions totaling \$5 million to waterfowl conservation.

With this year's state grant program contribution of \$250,000, MDC has provided the resources needed to restore, conserve and enhance more than 235,000 acres of prime waterfowl nesting habitat in Canada. Why would Missouri send \$5 million for habitat work in Canada? Because that habitat sends millions of ducks back to Missouri.

Besides directly affecting nearly a quarter of a million acres of habitat in the Prairie Pothole Region (PPR), Missouri's contributions have positively influenced an additional 1.2 million acres.

The state grants program represents a unique international funding partnership that preserves critical waterfowl habitat while working toward achieving the goals of the North American Waterfowl Management Plan. Contributions from the states are matched by DU, Inc. and DU

Canada, as well as the North American Wetlands Conservation Act.

"MDC's investment in Canadian waterfowl habitat yields direct, tangible returns for Missourians," said MDC Director Bob Ziehmer. "Leveraging our contribution and money from other states four-to-one helps us protect critical nesting habitat that sends millions of ducks winging down the Mississippi Flyway to Missouri and beyond each fall."

Waterfowl band recovery data has established a clear link between waterfowl produced and banded in Canada's PPR and subsequently harvested in the Mississippi Flyway. Priority habitats in Manitoba stand out as a primary Canadian source of ducks harvested in Missouri. In addition to benefiting ducks, this partnership with Canada benefits a lot of other migrants.

E-Permits First Month Report

A comparison of online permit sales for March with online sales last year indicates strong support from permit buyers.

Missourians have been able to buy hunting, fishing and trapping permits online for several years. However, the new e-Permits System launched March 1 offers some significant advantages over the old system. For one thing, you now can print permits—including deer and turkey permits—and have them in hand immediately. No waiting for permits and tags to arrive in the mail. Forgot to buy a permit, and it's opening day? Just fire up your home computer, buy and print a permit, and you are in business! No need to drive to a big-box store and stand in line. Finally, MDC has dropped the convenience fee for online permit purchases from \$2 to \$1. E-Permits also allows you to save permit documents to your computer and print more as needed, without paying a replacement fee.

Apparently, all these advantages appeal to many permit buyers. From March 1 through 31, MDC sold 9,989 permits. That is nearly triple last year's sales for the same period last year.

If you like buying your permits while stocking up on hunting and fishing supplies, you can buy permits from vendors using the old Point-of-Sale system through June 2012. After that, you still will be able to buy permits from vendors who switch from Point-of-Sale to the e-Permits System.

Youth Turkey Harvest

Fortune smiled on young hunters during Missouri's spring youth firearms turkey season April 9 and 10, enabling them to shoot an impressive 3,898 turkeys.

This was the second year in a row of warm, sunny weather for the youth season, encouraging hunters age 6 through 15 to spend plenty of time pursuing gobblers. This year's harvest was nearly identical to last year's figure of 3,945. Top counties for this year's youth season were Franklin with 101 turkeys checked, Wright and Callaway with 77 each and Polk County with 75.

Male turkeys gobble most on warm, sunny days with moderate wind. Weather across most of the state closely matched this description this

year, paving the way for an excellent hunt. Youth harvests prior to 2010 ranged from 3,894 in 2005 to 2,530 in 2001, the first year of the youth hunt.

The youth season provides an opportunity for adults to focus on mentoring young hunters. The impact on the state's wild turkey flock is minimal, since the youth harvest usually accounts for approximately 5 percent of the annual harvest.

During the spring youth turkey season, Governor Jay Nixon, the Conservation Federation of Missouri, National Wild Turkey Federation, the Missouri Department of Conservation, private landowners and volunteers hosted the annual Governor's Youth Turkey Hunt.



ASK THE OMBUDSMAN

Q: When I was turkey hunting on a conservation area, someone drove a tractor into the nearby field and began planting. Can't the agricultural work on public hunting areas be scheduled to avoid the spring turkey season?

A: Many of the crops that are grown on conservation areas are put in and harvested by local farmers who contract with the Department for specific plantings. They typically farm their own properties as well and must arrange all of their spring work around soil conditions and appropriate planting dates. Given that the conservation area work is usually a small part of a larger farming operation, we do not wish to constrain them during a three-week period in the spring when conditions may be suitable for planting, but we will ask them to avoid morning activities when possible. Overall, hunters benefit from having crops and food plots planted on the areas, although a few hunts may be disturbed by the work.

Q: What precautions should I take to avoid spreading zebra mussels when moving my boat to another lake?

A: There are several precautions that should be taken. These include: inspect the boat to remove any mussels or aquatic plants; drain any water from motor, livewells, bilge and transom wells; put any leftover bait in a trash container or in a plastic bag and dispose of it in your household trash; and rinse and dry the boat (do-it-yourself carwashes work well). Allow the boat, motor and trailer to dry thoroughly in the sun for at least five days before launching it in a different lake or stream. Here's a link to more detailed instructions: www.mdc.mo.gov/node/4681.



Cleaning boat motors helps stop the spread of zebra mussels.

Trappers' Convention Aug. 4-7

Missourians who yearn to learn how to trap otters under ice or clean a turtle, find out more about mountain lions or collectable traps or possibly meet representatives from international fur auction houses can do all that and more at the National Fur Trappers Association's 52nd annual convention

in Aug. 4 through 7. For those four days, Columbia will be the center of the nation's trapping universe, with opportunities to compare notes with hundreds of trappers, shop for bargains from more than 100 vendors and attend demonstrations on dozens of topics. For more information, visit www.nationaltrappers.com/2011nat.html.

Conservation Heritage Foundation Awards \$35,000 Elk Grant

The Missouri Conservation Heritage Foundation (MCHF) recently announced a grant of \$35,000 to underwrite elk restoration in Missouri. The grant will help pay for elk trapping, holding, disease testing, research, monitoring and transportation.

"We are very grateful to the Missouri Conservation Heritage Foundation for its support of our elk restoration efforts, and for its long-standing support of numerous conservation efforts in Missouri," said MDC Director Bob Ziehmer. "Partnerships between government and citizen conservation groups, such as MCHF, make it possible to achieve things beyond our separate means. It is a model that has proven successful time and again and is responsible for Missouri's—and America's—greatest conservation success stories."

MCHF is a nonprofit, charitable organization created in 1997 to advance the conservation and appreciation of Missouri's forest, fish and wildlife resources. Its funds come from individual donations, the Stream Stewardship Trust Fund and from sales of Conservation Heritage license plates.

"The Foundation is pleased to be able to help MDC restore elk to Missouri," said Chris Nattinger, chairman of the MCHF board of directors. "This magnificent animal is part of our natural heritage, and we think that the public as well as the ecosystem will benefit by bringing elk back to Missouri."

Since 1997, MCHF has provided more than \$11 million for conservation and outdoor recreation. In 2010 alone, it funded 33 projects through more than \$1.35 million in grants.

In addition to the MCHF grant, the Rocky Mountain Elk Foundation has pledged \$300,000 for Missouri's elk-restoration program and the Appalachian Wildlife Foundation has pledged \$50,000.

For more information about MCHF, visit www.mochf.org. For more information about elk restoration, visit www.mdc.mo.gov/node/10123.



Elk



Black bear

Report Black Bear Sightings

Missourians can help manage the Show-Me State's growing black bear population with a phone call or a quick trip online. Citizen reports of bear sightings give MDC a huge network of observers. "Citizen reports provide information about bear abundance and distribution," said Assistant Furbearer Biologist Justan Blair. "Documenting public observations is a cost-effective way of collecting data." To report a bear sighting, call 573-882-9909, or fill out the report form at <http://1.usa.gov/fbtk0g>.

850 Compete in Archery Tournament

The 2011 Missouri National Archery in the Schools (MoNASP) state tournament Feb. 25 and 26 drew 857 students in grades 4 through 12 from 49 schools across the state. Winners and others with qualifying scores advanced to the national event in Louisville, Ky., May 13 and 14.

The top-scoring male student was seventh-grader Colton Fry of North Wood R-IV in Salem. The top-scoring female student was tenth-grader Emily Reel of Crane High School in Crane. Top scorers received Special Edition Genesis Bows.

Winning teams were Crane High School, High School Division; Ridgewood Middle School, Arnold, Middle School Division; George Guffey Elementary School, Fenton, Elementary School Division. For detailed tournament results, visit www.mdc.mo.gov/node/3813.

MoNASP is a partnership between MDC,

schools and supporting organizations. It promotes education, self-esteem and physical activity for students. More than 25,000 Missouri students from 165 schools participate in MoNASP. Since NASP's beginnings in 2002, more than 7 million students have participated in the program through 7,350 schools in 47 states and five countries. For more information on MoNASP, visit www.mdc.mo.gov/node/3409.

Women's Workshop June 3–5

Women interested in developing outdoor skills can get hands-on outdoor skills training at the Discover Nature Women's Summer Workshop June 3–5 at the Windermere Conference Center in Roach, Mo.

The workshop is geared for beginners, and provides a safe, friendly learning environment. Courses include canoeing, Dutch oven/outdoor cooking, camping, fishing, fly tying, map/compass reading, archery, basic hunting, an introduction to firearms and shotgun shooting.

The workshop is open to women 18 years and older and those ages 14 through 17 when accompanied by a woman 18 years or older. The registration deadline is May 13. The workshop is free, but a refundable \$20 deposit is required for registration. There is no deposit for participants under age 18.

For more information, visit www.mdc.mo.gov/node/3401 or contact Lynn Merritt-Goggins at 573-522-4115, ext. 3808 or Kevin Lohraff at 573-522-4115, ext. 3294. For information about the Windermere Conference Center, visit www.windermereusa.org.

Get Your Guide to 50 Great Places

The latest addition to the growing library of MDC books is *Discover Missouri Natural Areas: A guide to 50 great places*. It lives up to its name.

The book's author, MDC Natural Areas Coordinator Mike Leahy, profiles 50 of Missouri's more than 160 designated natural areas representing all 13 of the state's natural communities in all four of its ecological regions. Captivating plant, animal and landscape photos illustrate summaries of the areas' natural features, plants, animals and points of interest.

Leahy has thoughtfully provided a table that enables users to quickly compare special

Did You Know?

MDC partners with Missourians to sustain healthy streams.

Stream Teams

- » Stream Teams provide an opportunity for everyone to get involved in stream conservation of Missouri's more than **110,000** miles of streams.
- » More than **3,676** active Stream Teams are located throughout the state.
- » More than **73,520** volunteers contributed more than **132,000** hours to enhance and restore Missouri streams last year.

- » Stream Team goals are:

Education—Learn about Missouri's 110,000 miles of flowing water.

Stream Teams provide training and information to better understand our stream systems and the problems and opportunities they face.

Stewardship—Hands-on projects such as litter control, streamside tree planting, water quality monitoring and storm drain stenciling are all possibilities.

Advocacy—Those who have gained a firsthand knowledge of the problems, solutions and needs of Missouri's stream resources are best equipped to speak out on their behalf.

- » **Nationally recognized**—Conservation Department Fisheries Biologist

Mark Van Patten was honored as one of the 25 most influential people in hunting and fishing by *Outdoor Life* magazine. He was named to the list because of his work with the Stream Team program and his continued involvement as a stream conservationist.

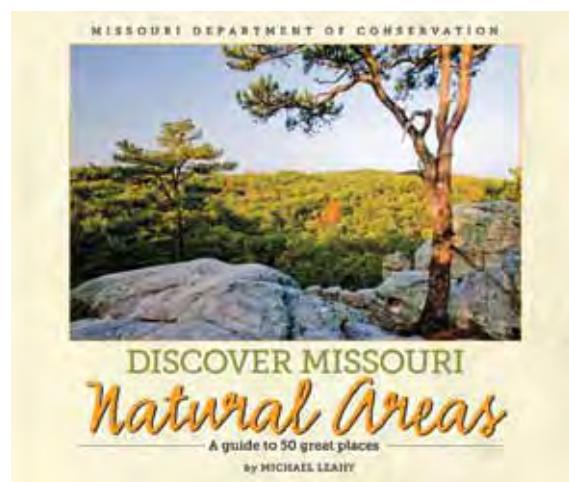
- » **Stream Team membership**—Free to any interested citizen, family or organization. You may adopt any stream or river of your choice. We can suggest streams if you like, or connect you with other Teams in your area. To learn more about Missouri Stream Teams or to find a membership form, visit www.mostreamteam.org.

features, natural communities and recreational opportunities on all 50 areas. The table includes trails on 35 areas, boat access to seven, and hunting and fishing opportunities on another 34 of the areas profiled.

Also included are sections explaining natural community types, Missouri's ecological geography, guidelines for visiting natural areas and how to use the book's features. There is even a glossary to explain special terms and a list of scientific names to help users who want to find more information about natural areas' inhabitants.

Discover Missouri Natural Areas is a thoughtful gift for friends who love the outdoors. It costs \$9 plus

sales tax and shipping and handling. To order, call toll free 877-521-8632 or visit www.mdcnatureshop.com.



Outdoor Etiquette

A little preparation and care make for better adventures

by TAMIE YEGGE • photos by DAVID STONNER

I'M NOT TALKING "TAKE YOUR SHOES OFF AT THE DOOR" etiquette or knowing which fork to use, but there are manners to be minded in the great outdoors, as well. Think of visiting conservation areas, parks, trails, campgrounds and similar areas as you would a friend's home. There are lots of things you can do to help take care of these places and have a better experience while you're there.

As an employee of the Conservation Department, I often visit the areas we manage. The experience of walking through a healthy forest, sitting by a clean stream, or scouting a hunting area is like no other. Did you know that MDC manages more than 988,000 acres throughout the state, including four trout parks, 846 lakes, five coldwater fish hatcheries, five warmwater fish hatcheries, a tree nursery, five Conservation Nature Centers, two Education Centers, five staffed shooting ranges, 70 unstaffed shooting ranges, a central administrative office and eight regional service centers? There are so many opportunities, how do you choose?

First Impressions

A great start is to think about the activity you'd like to pursue, and how far you are willing to travel. Just as you introduce yourself when you meet someone new, you can improve your experience by getting to know an area you are interested in visiting. There are many ways to get information, but one of the best is to go online. If you have Internet access, you can visit www.mdc.mo.gov/node/8911. From there, you can search areas by name, county or region.





Manners for a WILD Time

- » Check the rules of the area you are going to visit and follow them. If you ever wonder why a rule is in place, please ask!
- » Wear appropriate clothing, especially footwear! Avoid discomfort and blisters. Improper shoes can even be dangerous, as the soles may be slick or they may not provide adequate ankle support. Stay on the trail, don't use cut-offs, switchbacks or paths that aren't part of the trail. This creates erosion over time and can undermine the original trail. It costs money to repair trails and fight erosion, so help protect what's there.
- » Stay to the right and pass on the left, but always quietly let people know you are coming up behind them. It makes the day brighter when hikers say hello when passing in opposite directions.
- » Yield to uphill hikers when you are moving down the hill. They've got a much harder task! If they choose to stop, you can then move forward. On trails that allow jogging, bikes and horses, it's a bit more complicated. Bikes and joggers must yield to walkers, but everyone must yield to horses for safety purposes.
- » Bring out what you take in, even food waste such as orange peels, apple cores and peanut shells. These take a long time to degrade and no one wants to see litter destroying an otherwise perfect natural setting. Empty soda cans weigh much less than full ones, and they can be smashed to fit in a pocket. Special rules apply for glass and coolers when on a river or stream. Canoe outfitters are happy to supply you with a mesh litterbag so you can help keep the area clean.
- » Cigarette butts are litter too. Filters are not made of cotton and they do not biodegrade. They are made of compressed fibers of cellulose acetate, a plastic, similar to photographic film. Cigarette butt chemicals in our streams, lakes and rivers are a significant threat to aquatic life.
- » Don't collect anything (unless it is specifically permitted). Leave natural items for the next person to see. If you pick a fistful of flowers, they'll be wilted before you are off the trail and gone for others to enjoy. Wild animals and their homes should be left alone. Never pick up a baby or pursue any animal.
- » On trails where pets are allowed, they should be kept on a leash. Even a friendly dog can accidentally injure a child or pursue wild animals, and it can be scary to be eye to eye with a strange canine. Narrow trails do not leave much room for passing so keep your dog on the outside so you are between him and the person you are passing.

You can find information on each area including contact information, history of the area, land types, trails, activities, features and facilities. There are also interactive maps with details about boat ramps, species of concern, fish cover and other useful tidbits. You can view the area map and brochure, if one is available. If you can't make your way to a computer, call or visit your regional MDC office and talk to the staff (phone numbers on Page 3). They can give you maps and information about conservation areas.

Maximize Your Outing

You can use these resources to find the conservation area that is best suited to the activities you want to pursue, or to improve your chances of seeing certain flora and fauna. You can also learn an area's rules and prepare for your needs based on how long you will be gone and what you will be doing.

Once you do arrive at your chosen spot, try to turn off your cell phone or iPod and look and listen to your surroundings. Even if just for an hour or two, experience the peacefulness of what is around you. Take the time to really look at what you are passing. So many people miss out on the experience of seeing a deer fawn hidden in the leaves, or watching a tiger beetle larvae pull its next victim into its lair. Animal tracks, feathers, hair, nests, burrows and even scat (that's a biologist's word for droppings!) might lead you to see some very interesting creatures. Birds, flowers, rocks, fish, lizards, insects, spiders (and spider webs) are all part of the experience and easily missed if you aren't focused on using all of your senses.

Learning to identify irritating or harmful animals and plants will also help you better enjoy your experience. Poison ivy and ticks are the most common irritants. Learn what they look like and how to avoid them, as well as what to do if you run in to either of them. Gain knowledge of the animals of the region you will visit. Most snakes, for example, are harmless. Out of 46 species of snakes, there are only five that are venomous and one of those is endangered—the eastern massasauga rattlesnake. Fortunately, each has its own distinguishable pattern and can easily be identified if you take a few minutes to learn what they look like and where they live. Did you know that most people bitten by snakes were either handling or trying to kill the snake? You can find more information on these and other species in our online field guide at www.mdc.mo.gov/node/73.

Take a journal or camera to record where you went, what you did and how well the area fit your needs. Use them to remember your trip, rather than taking natural objects as mementos. Encourage children to explore, touch, smell and listen to the world around them. If you show an interest, they will too.



Hunting and Angling for Good Times

If you are planning a hunting trip, become familiar with the laws associated with your hunt. Plan to scout the area ahead of time to learn not only the patterns of the game, but also to get an idea of how heavily others use the area. Knowing where you are going and what to expect will ensure a safer experience and a better chance for a successful hunt. When fishing, know special regulations ahead of time and talk to others about what bait and tackle has been successful so you can plan ahead. You can find hunting and trapping regulations at www.mdc.mo.gov/node/2454 and fishing information at www.mdc.mo.gov/node/3104 and in regulations booklets available at many sporting vendors and Department offices.

Skill Building

If you are new to any activity, or want to try something for the first time, consider taking a class at a nature center, shooting range or other office. You can try your hand at outdoor skills such as orienteering, archery, fishing, hunting, shooting sports, Dutch oven cooking and more. You can also learn more natural history skills, such as bird watching, tracking, wildflower and tree identifica-

Scout the area you plan to hunt to get an idea of how heavily others use the area. Knowing where you are going and what to expect will make for a safer experience and a better chance for a successful hunt.

tion, journaling, habitat exploration and natural crafts. Programs, trainings and events can be found online at www.mdc.mo.org/node/91 by clicking on the map in the region you want to visit, or by calling your regional conservation office (see Page 3 for phone numbers).

Caring for Resources

Wherever you go, and whatever you do, remember how you can help us care for the resources you are using. If you have suggestions or comments, or see vandalism or other things that concern you, please take the time to let the area manager or a conservation office know. If you witness any illegal activity, a conservation agent is only a phone call away. Call Operation Game Thief, toll free, at 800-392-1111 to get the information to the right person. This land is yours to use, and abuse of it is stealing from your outdoor experiences. ▲



WHERE Have the QUAIL Gone?

A multifaceted approach is needed to
improve bobwhite populations

by MAX ALLEGER

I'VE LONG HEARD ACCOUNTS OF THE GOBBLER someone's neighbor's friend shot that had several quail chicks in its crop. The hunter who shot this mythical bird is never named, which is just as well because spring turkey season ends well before the first quail chicks hatch, making him or her an out-of-season turkey poacher. Still, like so many "urban legends," this one makes for good coffee shop talk because it persists in some areas.

The tale of the quail-gobbling tom springs from false conclusions drawn about very real population shifts for these two species. Until recently, the range and number of Missouri

turkeys had expanded tremendously. That this expansion occurred during the same period that brought our steepest quail decline was proof enough to some that turkeys must eat quail, or at least compete with them for resources. Turkey populations have declined dramatically in parts of Missouri, largely in response to poor weather during consecutive nesting and brooding seasons, with no widespread increase in quail. Perhaps it's time to take stock of the real reasons why quail have declined.

Bobwhite numbers peaked in the 1950s and 1960s, and then began a steady decline. The high quail numbers we once enjoyed resulted

Urban legends of quail-gobbling turkeys are just that. Researchers have found no logical conclusion that turkeys have a direct role to the decline of quail.

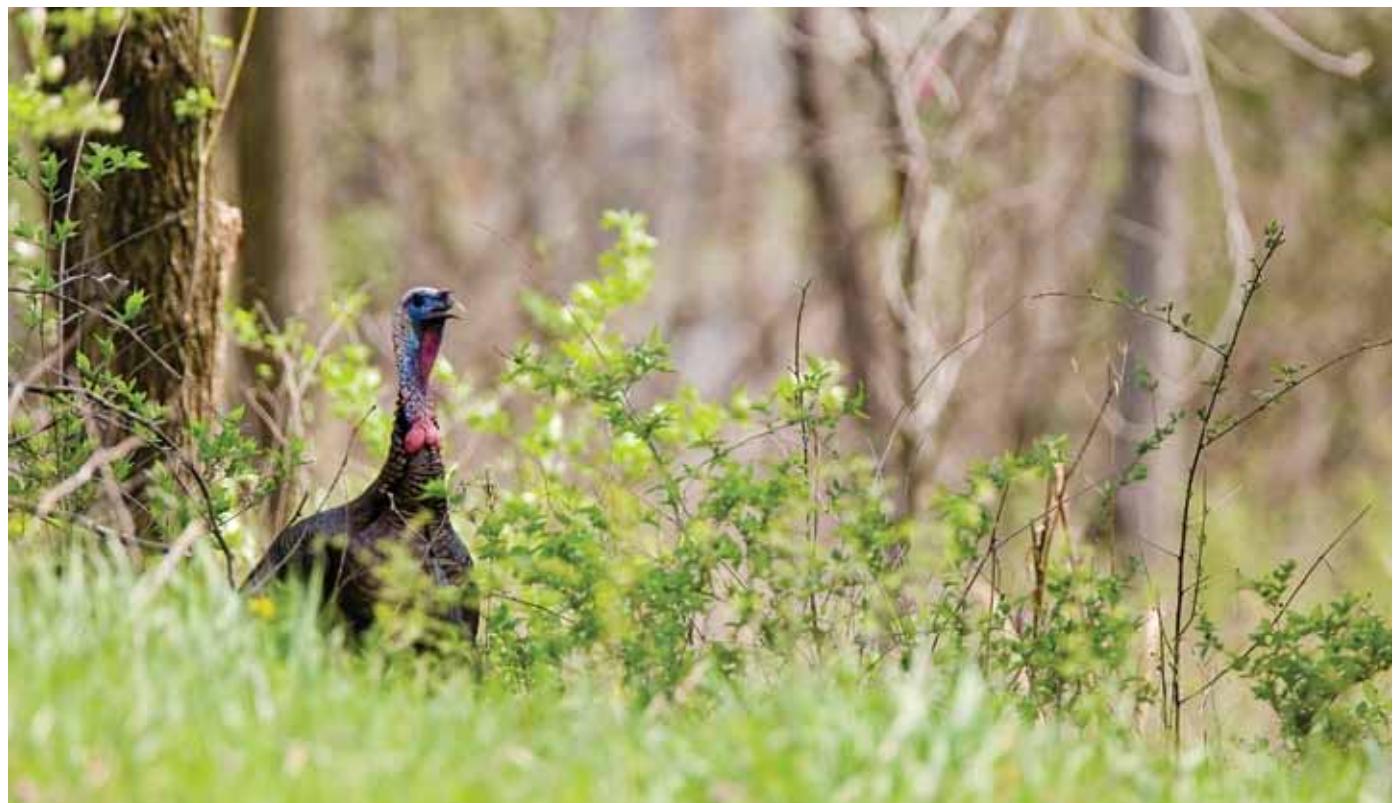
more from how we used land than from any purposeful management to favor them. The patchwork of small farm fields planted to a broad array of annual crops and forages across much of Missouri created ideal conditions for bobwhites. In times past, grazing was less intensive, burning was more common and farm boys cut sprouts with axes and sawed posts from hedgerows. The way we used the land provided a nearly ideal level of habitat disturbance for quail, cottontails and other species that need a diversity of early-successional cover.

Subtle shifts in how we manage the land have unfolded across decades. The result is a simplified landscape that lacks the patchiness quail need to thrive. Entire townships are today dominated by huge fields of soybeans and corn, or intensively grazed pasture. Consider that tall fescue, a resilient grass commonly managed such that it provides no beneficial habitat, expanded during this period to cover an estimated 17 million acres in Missouri, nearly a third of the state. Open lands and old fields have given way to woodland that provides little usable cover, and unmanaged hedgerows benefit predator over prey.

Beyond our farms, rural Missouri has been fragmented to make way for suburbs and homes on small parcels, where potential habitat has been turned to more park-like settings. Abundant quail and rabbits are no longer the happy coincidence of how we manage the land. Today it takes purposeful management, proactive investments of time, money, sweat and concern to create and maintain islands of suitable habitat that support quail populations.

Back to That Quail-Gobbling Tom

A single Florida study from the 1930s noted an instance of turkeys destroying quail eggs. No study since has documented turkeys damaging quail nests or feeding on chicks. Turkey researchers have not found a single quail chick or egg fragment while examining thousands of turkey stomachs. In addition, scientists monitoring quail chicks fitted with radio transmitters and watching quail nests via remote cameras have yet to catch a turkey in the act. Given that hundreds of studies of wild turkey food habits and predation on quail have been conducted over the past 80 years, the lack of evidence is remarkable. The logical



TURKEY AND QUAIL: NOPPADOL PAOTHONG

conclusion is that turkeys have no direct role in the decline of quail.

So, why did turkeys seemingly replace quail in many areas? In 1980, longtime MDC Quail Biologist Jack Stanford warned that quail populations were headed downward due to habitat loss. Among the changes that have hurt quail, one that relates to turkeys is the increase in wooded land. Missouri has gained nearly 2.5 million acres of woodland since the early 1970s. These new woodlands are generally not large stands of healthy, mixed forest that provide valuable wood products or homes to forest interior songbirds. Much of this increase is comprised by small stands of less desirable trees such as cedar, Siberian elm or locusts that have encroached into once open areas. Turkeys colonized parts of the state that were formally bobwhite strongholds along with this expansion of wooded cover, particularly in the traditional prairie landscapes of western and northern Missouri.

Turkeys and quail share some habitat needs, such as grass for nesting, weedy areas for feeding on insects and row crops and acorns for winter food. However, the trees that turkeys require for roosting can spell trouble for quail. Quail need low-growing tangles of brush and briars for protection from predators and the elements. Tall trees shade-out this beneficial woody cover over time and provide perches for predatory hawks and owls.

Factors Beyond Our Control

In addition to shifting land use practices, factors beyond our direct control impact quail and other upland wildlife.

Weather

If you think we get more rain than we used to, you're right. Not only have the past four years been extremely wet, but long-term weather data show that Missouri and much of the Midwest have experienced an unprecedented wet period since the early 1980s. These records also show that significantly more rain has fallen during peak quail nesting and brooding periods in recent years. What does this mean for quail?

Wet nesting seasons can dramatically reduce chick production. Saturated soil beneath a nest cools the eggs from below and kills the chicks developing inside. In addition, young chicks



What Quail Need

- » Diverse, actively managed grasses
- » Dense, shrubby cover
- » Bare ground under a mixed canopy of broad-leaved plants and grasses
- » All three of the above cover types in close proximity
- » Disturbance such as burning, grazing, disking or spraying at least every 3 years

cannot regulate their body temperature for a couple weeks after hatching, so they must stay dry to survive. If a hen manages to keep the rain off her brood during a downpour, water pooled on the ground may still kill them.

Beyond direct mortality, increased precipitation makes habitat management more challenging. Woody plants are favored by high rainfall, and even beneficial native grasses can quickly become too thick to be useful to quail. The time interval between management treatments, such as burning, disking or grazing, that is needed to maintain good brooding habitat becomes shorter with increased rainfall, requiring more effort just to keep up.

When habitat is poor, weather impacts are magnified. Quail surveys show that, despite the weather, quail numbers remain higher on areas with ample habitat, so management is especially important during periods of unfavorable weather.

We can't control the weather, but we can adapt our efforts to wet conditions. The best approach may be to focus on maintaining good brood cover—weedy areas with sparse grass and ample bare ground. Consider grazing, disking, spraying or modifying the timing of prescribed burns to set back thick grasses and favor broad-leaved plants. Two or more such treatments in consecutive years may be necessary to get ahead of the impacts of too much rain. Maintaining idle areas, instead of planting grasses on areas where erosion is not a concern, may also help.

Predation

Retired MDC Quail Biologist Tom Dailey often said, "Death dominates quail life." Whether

Success Stories

PUBLIC LAND

2010 Bobwhite Hunting Season at

Robert E. Talbot CA

Frank Loncarich, wildlife management biologist
Southwest Region—Lawrence County

Wildlife Management Biologist Frank Loncarich is on a mission to increase quail on the Robert E. Talbot Conservation Area in Lawrence County, and his efforts are paying off. Intensive quail management including prescribed burning, patch-burn grazing, tree removal and savanna restoration coupled with favorable nesting conditions led to good numbers of birds available for hunting during 2010. Area staff observed numerous broods during routine activities and coveys were observed using newly grazed areas for the first time in 20 years. During 2010, 174 hunters reported taking more than 100 birds,



and the number of birds bagged per hour hunted has remained consistent since 2007. The focus at Talbot CA will remain on implementing proven grassland and savanna management practices to increase useable space and brood rearing habitat.

PRIVATE LAND

Landowner: Steve Remspecher (left)

Ted Seiler, MDC private land conservationist
Northeast Region—Randolph County



When Steve Remspecher purchased his 150-acre Randolph County farm a few years ago he found only one or two coveys of quail. The farm includes brome CRP uplands as well as bottom ground that is about half CRP wetland and half bottomland timber. Like most landowners, Steve has to carefully budget the time and money that goes into managing his farm.

When Steve began working with Private Land Conservationist Ted Seiler, he expected to plant food plots and build brush piles. He admits being surprised when Ted recommended setting back a third of the CRP planting in broad strips and burning about half the farm the following spring. Steve followed through with the plan, though, and good results were almost immediate as the farm gained three coveys in one year. Convinced he was on the right track, Steve sprayed another third of the CRP and burned more during spring of 2010. Steve's farm now boasts seven to nine coveys. Amazingly, this rapid increase occurred during three of the wettest years on record. And not only quail have responded: rabbits, deer, turkey and a number of grassland songbirds have shown big increases in his CRP planting.

as egg or adult, quail exist near the bottom of many food chains. Less than half of quail nests produce chicks, and more than 90 percent of those losses are to predators. In a study of north Missouri farm landscapes, predatory birds took 29 percent of quail, and mammals took an additional 26 percent. Losses to raptors, hawks and owls are generally greatest during winter, while mammals have the greatest impact during nesting. Although these losses appear alarming, quail have tremendous reproductive capacity. Given good weather and suitable habitat, quail typically bounce back from even devastating losses in 1-3 years.

High annual losses to predators should not be misunderstood to mean that predation is responsible for the decades-long quail decline. Landscapes with good habitat often have high numbers of quail as well as high numbers of many potential predators.

Although predator control is practiced, along with habitat management, on quail plantations in the southeastern U.S., such efforts are cost-prohibitive on a large scale. Predators are necessarily more mobile than their prey, and quickly recolonize an area after control efforts cease, making any gains temporary at best.

Many predators prey on quail, but no one species is a quail specialist. As a result, there are many predator-prey scenarios and no easy predator management solution. Controlling one or two predators will likely only result in increased opportunities for other species. For example, removing hawks and owls from a landscape would likely result in an increase in the number of small rodents, snakes, skunks and feral cats which, taken together, eat a significant number of eggs and adults. Likewise, targeting larger mammals like coyote or bobcat could favor mid-sized mammals such as fox, raccoons or opossums. Indeed, if one set out to eliminate quail losses to predators it might prove necessary to continually control at least a dozen species, not an affordable or palatable option for conservation-minded folks.

As with the weather, a practical approach to dealing with predation is to consider it a factor largely beyond our control and a natural part of quail biology. The good news is that habitat management helps limit the success of individual predators. Practices that return patchiness



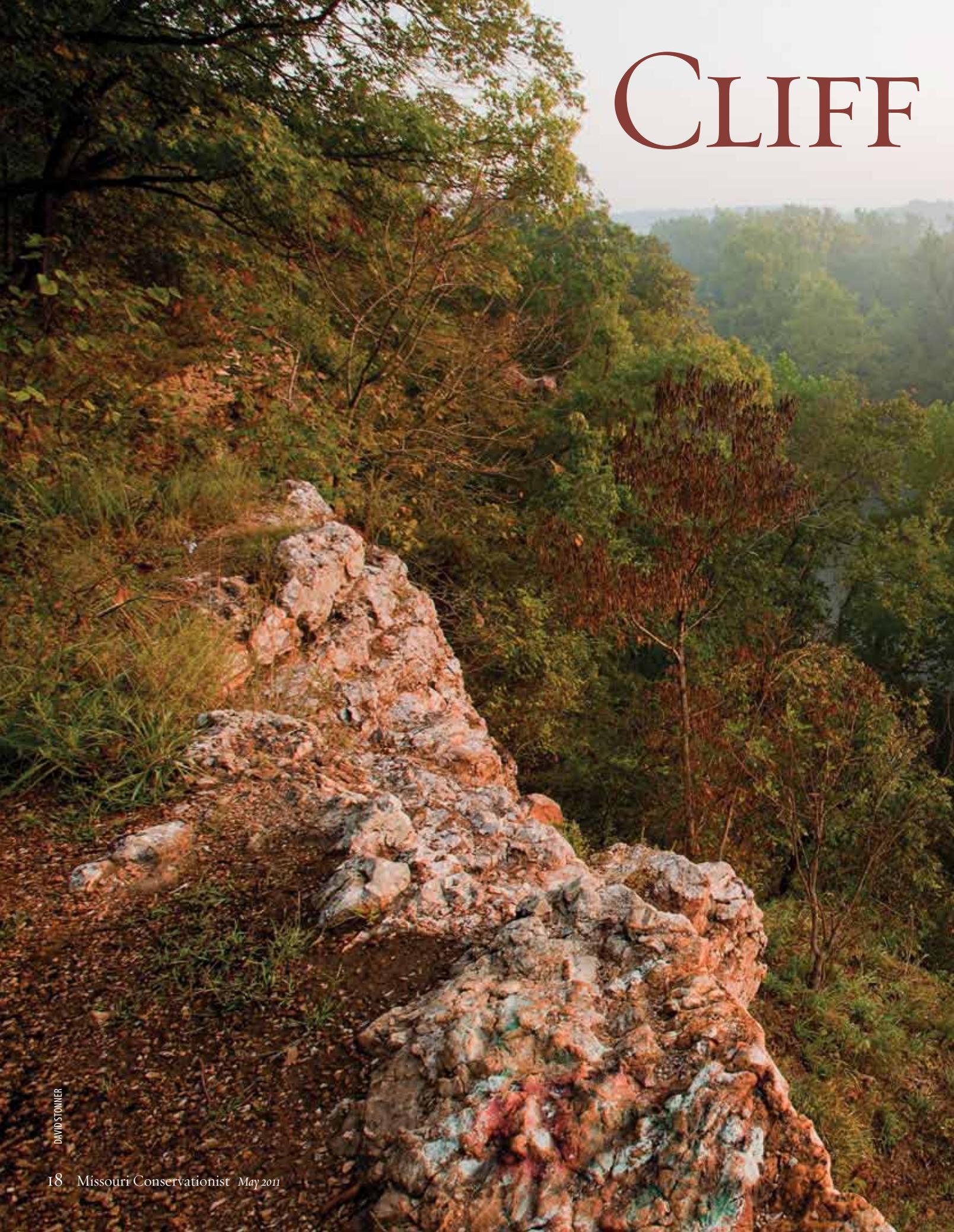
to the landscape are a step in the right direction. Maintain nesting habitat in large blocks rather than narrow strips to help confound the success of nest predators, and fell tall trees to enhance edge habitat and reduce potential perches for hawks and owls. Maintain patches of dense brushy cover, through edge feathering or shrub planting, to provide essential escape cover.

Reversing the land use trends that led to the decline of quail is unlikely, but restoring open lands and healthy quail populations in select areas remains a high priority for the Department of Conservation. MDC and our conservation partners invest significant resources managing for upland wildlife. In addition to intensively managing a number of special Quail Emphasis Areas, Department staff implements management on nearly 150,000 acres each year that benefits rabbits, quail and other grassland birds.

While quail may never become as numerous as in times past, hundreds of landowners from the Bootheel through the Ozarks to the open prairies are helping quail make a comeback. Managing for quail in landscapes dominated by woodland, grassland or crop fields present different challenges, and these committed conservationists put the right practices to work to make the most of their land and produce more coveys. Habitat is the key, and you can learn more about providing what quail need by visiting www.mdc.mo.gov/node/3678. ▲

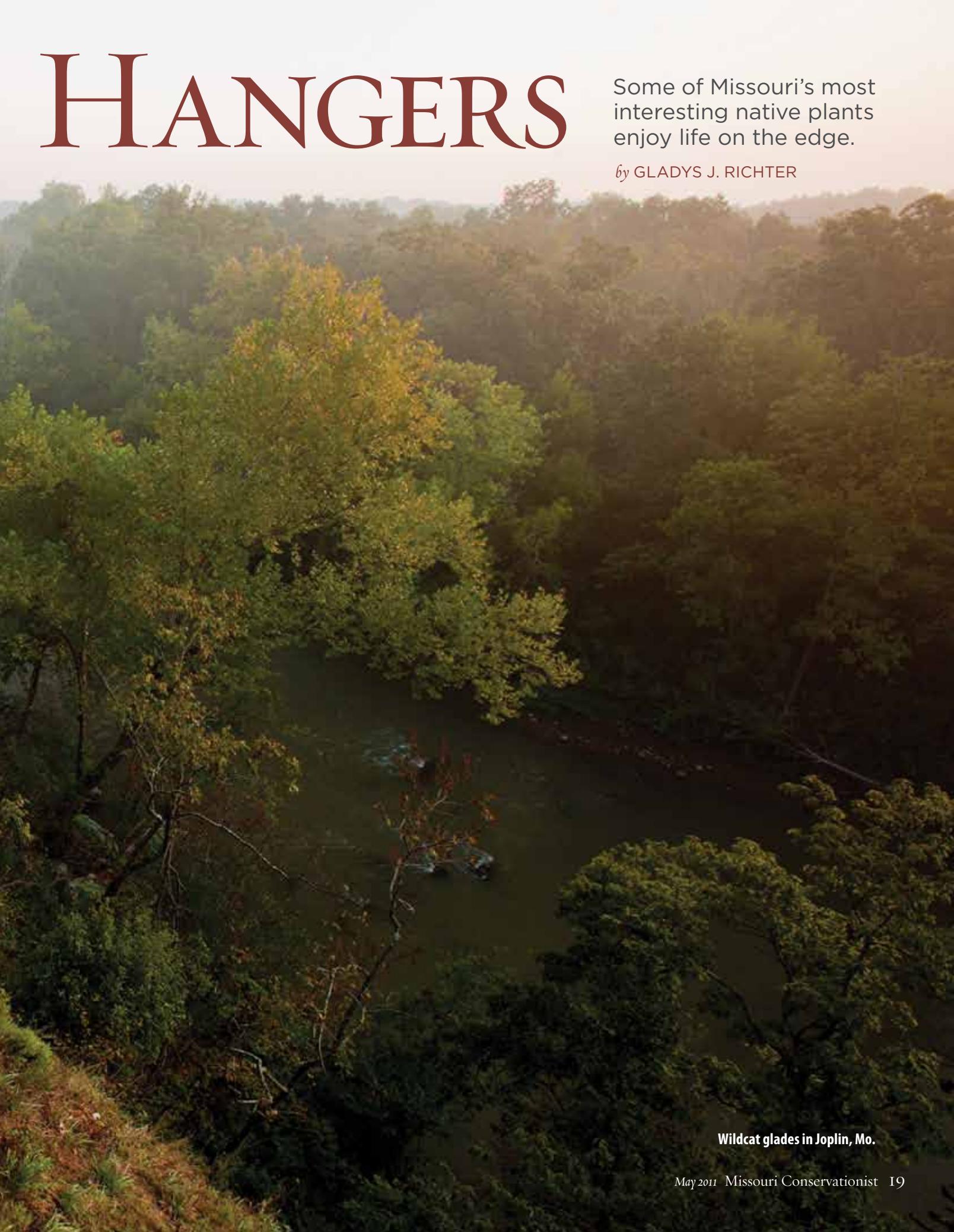
In order to benefit rabbit, quail and other grassland birds, MDC land managers at Whetstone Conservation Area engage in various habitat management practices, including warm season grass management, buffer strips, disking, cedar removal and edge feathering.

CLIFF



DAVID STONNER

HANGERS



Some of Missouri's most interesting native plants enjoy life on the edge.

by GLADYS J. RICHTER

Wildcat glades in Joplin, Mo.

CANOE A MISSOURI STREAM AND experience a variety of sounds, smells and sights. Around each watery bend there's a chance of a calm breeze alive with newly hatched mayflies or migrating monarchs, the melody of a vacationing male prothonotary warbler in the willows or some of the most often encountered riparian sights—cliffs. Whether sandstone, dolomite, limestone, igneous or chert, these jaunting rock faces provide ideal communities for a variety of animals and plants.

Plants living in cliff environments are hardy individuals that carve out a niche of their own within the rocky cracks and crevices. Relying upon the stone-splitting action of seasonal freezing and thawing, roots descend into thin, shallow soils seeking a firm hold. Some, such as tiny ferns and mosses, display mere sprigs of greenery. Others create a splash of vibrant color here and there or simply hang, like dangling jewelry, as in the case of the wild columbine.

Mosses and lichens are adapted to ledges and often appear as carpet-like mats upon undisturbed cliffs. A few herbaceous plants are considered relict species, their geologic roots reaching back to an era when glaciers were a dominant part of the midwestern landscape.

Our state's landscape is filled with rock-lined rivers such as the Gasconade, White, Meramec, Jacks Fork, Elk, Current and Eleven Point, along

Plants differ from one cliff community to the next.

Trumpet creepers are commonly found in dolomite cliffs, whereas aromatic aster can be found in igneous cliff habitats.

with their numerous smaller tributaries. As one navigates these scenic waters with paddle in hand, stone shelters and overhangs may come into view. These dry and moist sites, each with their own mix of stunted woody vegetation, vines, wildflowers and ferns, can be found by most observers.

Not all cliffs are composed the same. Like the variety of fishes found beneath the glistening Ozark waters, so too are the various exposures of Missouri's rock legends.

Plants differ from one cliff community to the next as well. Often the collection of flora found growing on one type of rock are displayed either sparsely or not at all upon another due to unique microhabitats. While some plants grow upon several different rock face communities, other species are totally restricted to select regional locations within the state. A major determining factor of plant composition on cliffs is the acidity of the soil. Limestone and dolomite cliff soil tends to be basic or not acidic. Sandstone, igneous and chert cliff soil tends to be acidic.

LIMESTONE AND DOLOMITE

With their towering presence measuring 250 feet or more, limestone and dolomite cliffs have become some of our streams' most recognized structures. Upon these algae-stained, calcium-enriched formations grow a dazzling, layered array of lacy ferns, insect-enticing wildflowers, twining vines and stunted, woody plants.

Centuries-old eastern red cedar and Ashe's juniper are suited to dry limestone and dolomite cliffs and thrive with the sun exposure, while shady ledges damp from spring water seepage provide the perfect climate for maidenhair ferns, alumroot and native hydrangea.



Trumpet creeper



Aromatic aster

Centuries-old cedar trees cling to the sides of Vilander Bluff Natural Area on the Meramec River. Sun exposure allows cedar to thrive on dry limestone and dolomite cliffs.

Along the Jacks Fork River in Shannon County, grey limestone cliffs come alive in springtime with the emergence of Tennessee bladder fern fronds and the sounds of courting songbirds.

No fishing, camping or canoeing adventure to this area would be complete without a trip to Jam Up Bluff Natural Area with its unique mix of karst terrain featuring sinkholes, an 80-foot high natural arch and an impressive cavern called Jam Up Cave. If you are lucky, you may even be rewarded on your expedition by the appearance of the rare showy lady's slipper, an impressive white and pink native orchid that has been documented blooming in Shannon County during May and early June.

Known to many by its aged, meandering nature, the Gasconade River has carved with down-cutting action a well-established scenic river valley and floodplain through the heart of Missouri. Highlighting prominent dolomite formations of the central Missouri Ozarks that are often covered with delicate, light-green fragile ferns, purple cliff brake and bright orange trumpet creeper vines, the Gasconade is a favorite retreat of sightseers, birdwatchers and those wishing to wet a fishing line throughout the year. Gold and bronze-mottled goggle-eye live among the rocks littering the river bottom, created by falling dolomite from high above.

Dolomite cliffs are similar to limestone with a bit more magnesium in their chemical composition. Autumn is a great time to float the Meramec River to view stunning examples. Cloaked in colorful hues of yellow, purple and orange, dwarf hackberries, chinkapin oaks and fragrant sumac often rival spring wild-flower displays. Vilander Bluff Natural Area in Crawford County borders the Meramec and showcases classic dolomite and limestone bluffs with eastern red cedars that are more than 300 years old.

Traveling through southern Montgomery County, you can watch turkey vultures floating the thermals atop the unique dolomite formations of Grand Bluffs Conservation Area. Here





populations of various glade plants find their niche upon cliffs along the Missouri River.

IGNEOUS

A snapshot of a typical igneous cliff habitat would show sparsely vegetated granite and rhyolite stone ledges and irregularly jaunting vertical slopes covered with gnarled black jack oaks and lichens. Bluffs of Iron, Shannon, Reynolds and Wayne counties showcase this type of cliff community the best.

Big Creek in southeastern Missouri has, over the centuries, cut its way through Mudlick Mountain, creating giant sheer bluffs and spectacular shut-ins. Here, serviceberry trees, covered with their snow-white blossoms, seem to chant "spring is here" well before other trees break open their tiny buds.

With heights of 100 feet or more, igneous cliffs are exposed to the elements. Storms, prevailing winds, sunlight and extreme temperature fluctuations during both winter and summer take their toll upon any vegetation attempting to live upon the volcanic stone.

Plants that root into the rock strata of the St. Francois Mountains, Johnson's Shut-Ins and Royal Gorge Natural Area are suited to varying microhabitats. Moist crevices and ledges support liverworts, ferns and algae, while drier sites are composed of glade plants such as tickseed coreopsis, aromatic aster and wild hyacinth.

CHERT

Visitors touring the Wildcat Glades area of southwest Missouri may view small, restricted chert cliffs. The banks of Shoal Creek showcase dry, sparsely vegetated formations with heights much lower than bluff areas composed of igneous, limestone or dolomite.

During May and June blossoms of columbines grace the moist ledges and vertical cracks. Plants with adaptations more suited to dry, desert-like conditions include eastern prickly pear cactus, armed with its sharp spines and waxy-textured outer covering of succulent stems. Wildcat

Pickle Springs Natural Area entices many hikers and campers, but cliff habitats and their native species can be damaged by activities such as rock climbing or rappelling.



Eastern prickly pear cactus



Mountain azalea

Glade represents a rare community found only in small-acre patches worldwide.

In contrast to the dry desert nature of the chert at Wildcat, many valleys of the Missouri River in Callaway County are home to moist chert cliffs and rocky terraces composed of lumpy formations known as Graydon Conglomerate. Growing upon more northern and eastern exposures of cliffs within the Earthquake Hollow Conservation Area are populations of ferns and other herbaceous plants that provide a lush habitat for insects, reptiles and amphibians.

SANDSTONE

Designated a Natural Area in 1986, Pickle Springs entices hikers and campers throughout the year with its dry and moist sandstone formations adorned with short-leaf pine and mountain azalea. Plants found growing in this unique community also include hay-scented ferns and blue ground cedar. Adjacent glades, forests and savannas provide habitat for a variety of plant and animal life, which depend upon sandstone communities for their survival.

Drier sandstone cliff communities commonly display stunted oak and hickories as well as grape vines and sedges. Rocky Hollow Natural Area in Monroe County and Buzzards Bluff in St. Clair County provide good examples of exposed dry sandstone ledges.

Ferns such as mountain spleenwort and common polypody are well adapted to sand-enriched bluffs. Harebell and northern white violet are considered plant relicts and also find refuge upon select moist ledges and cliff overhangs.

Totally restricted to sandstone sites, French's shooting star flowers for a short time in early to mid-spring. It is a rare treat to come upon

this compact and lovely delight with its ruffled, green leaves and pure white flowers. French's shooting star is listed as a species of conservation concern in Missouri. On a global scale, it is listed as vulnerable.

CURRENT THREATS TO CLIFF COMMUNITIES

Cliff habitats and their native species are threatened by a host of disturbances. Some of the most damaging are Japanese honeysuckle and kudzu vines and other exotic species, as well as invasion by woody vegetation such as eastern red cedar, which can be aggressive on open cliff habitats.

Domesticated animals can devastate cliff communities, especially those with moist microhabitats. They provide attractive lush vegetation that is prone to overgrazing.

Activities such as rock climbing or rappelling can damage and destroy entire delicate colonies of mosses, ferns and lichens that took many years to become established. Once a microhabitat is disturbed, its composition may change, allowing invaders to get a stronghold and cause even further destruction to the native ecosystem.

When planning your next outdoor adventure, grab a paddle and a pair of binoculars. Then prepare to experience a few of nature's unique cliff sites firsthand. By observing our natural rock-face communities by canoe or established trails, we can help ensure that our grandchildren and their grandchildren will also be able to experience some cliff hangers of their own along our scenic waterways. ▲

The eastern prickly pear cactus is more suited to the dry, desert-like conditions of chert cliffs, but the mountain azalea enjoys the dry and moist sandstone habitats.



ODDBALL ANGLING

DRUM & STURGEON

A “sport fish” should not be defined by species alone. *by GREG STONER*

IT HAS ALWAYS BEEN A PET PEEVE OF MINE THAT SOME fish species are awarded the title of “sport fish,” while others are cast aside by the media and angling public as “non-sport” or “rough fish.” Just this past spring, I was up a local river, wetting a line, when some commotion broke out in a nearby boat. One of the anglers had hooked into a heavy fish that apparently had no intention of coming to the surface. After 4 or 5 minutes of watching them follow this fish around with the trolling motor and listening to the angler repeatedly chant “Don’t get off! Don’t get off!” the fish finally ran out of steam and was netted by the angler’s companion. After all that excitement, the first comment out of the anglers’ mouth was “It’s just one of those drum! All that for nothin’ but a stinkin’ rough fish.” At that point, the poor 10-pound drum was unceremoniously dumped overboard.

Let’s think about this for a minute. The drum slammed into the angler’s lure and put up one heck of a fight, giving the angler several minutes of excitement. A 10-pound fish is nothing to sneeze at, regardless of species, and drum are not bad eating. In my book, that’s a sport fish.

CAN’T BEAT A DRUM

Our drum is the only North American freshwater member of a large family of fish (Sciaenidae), which contains approximately 270 species worldwide. Members of this family, most of which are found in salt or brackish water, include several well-known sport fish such as whiting, sea trout and redfish (red drum). The name “drum” comes from the grunting or croaking sounds that some species make by vibrating muscles in the body wall adjacent to the swim bladder. This “drumming” is thought to be associated with spawning activities.

The native range of the freshwater drum in the United States extends from Canada to the Gulf of Mexico, west to the Rocky Mountains and east to the Appalachians. In Missouri, drum are found in reservoirs and medium to large streams throughout the state. Most of the drum caught by anglers average 12 to 20 inches and weigh 1 to 5 pounds. However, the Missouri state record, taken

from Lake of the Ozarks in 1980, weighed 40.5 pounds. The world record from Nickajack Lake, Tenn., tipped the scales at 54.5 pounds!

Drum generally hit bait hard and, once hooked, are determined fighters. Drum can be caught on a number of



Drum fish

8 TIPS FOR HANDLING and RELEASING FISH

To find more information on handling and releasing fish, visit www.mdc.mo.gov/node/4971.

1. Fish that you don’t intend to keep or fish that are smaller than the legal length should be released immediately and gently.
2. Avoid handling fish excessively. The mucus covering the fish’s body should be protected because it prevents infection.
3. Hold fish firmly. A fish dropped on the ground or in a boat has a poor chance for recovery.
4. Grasp large-mouthed fishes by the lower jaw with thumb and forefinger; smaller fishes with your hand around the mid-section, wetting hands first. Fish with teeth may be handled by grasping them across the gill covers. Hold larger fish horizontally, supporting the belly, to avoid damage to muscles, vertebrae or internal organs.
5. Never put your fingers in the gills or eye sockets.
6. Every angler should carry a hook remover or needle-nose pliers. Back the hooks out if possible.
7. Never pull a hook from the fish’s throat or stomach. It is better to cut the line. Many hooks will rust away.
8. Use hooks with barbs squeezed shut if you intend to release all fish or if you like additional challenge.

artificial and natural baits. Among artificial lures, most drum are caught on jigs, but they will also hit a crankbait. If you are specifically after drum, it is best to use natural bait. Night crawlers, crayfish, minnows, shad and cut bait are all effective for taking drum.

Regardless of the bait used, it should be fished on or very near the bottom around rocky areas. Fishing a jig vertically, slow trolling a bottom bouncer rig or drifting a bait over shallow rocky humps on light line and a split shot as a weight can all be successful. A word of warning: Drum have plates of powerful crushing teeth in their throats that enable them to feed on mussels by crushing the shells. If a drum swallows your hook, do not stick your fingers down its throat to get your hook back. It hurts. Believe me.

A number of anglers pride themselves on predicting, with a high degree of accuracy, the species of fish they have on the line before they ever see it, based on the way it fights. Because a big walleye and a drum feel very similar on the end of a line, many alleged "lunker walleye" miraculously transform into drum as soon as they break the surface of the water.

As for table fare, drum can be fried, smoked or cooked on the grill. They also make a tasty substitute for redfish in Cajun or "blackened fish" recipes (see recipe below).

Anyone who fishes in one of our reservoirs or medium-sized streams is likely to land a drum sooner or later. But there are some species of fish that you may never encounter unless you venture onto our largest rivers. Good examples of this are the sturgeons.

SENSATIONAL STURGEON

In terms of appearance, sturgeon are among the most unusual-looking fish in the state. Along with the gar and paddlefish, sturgeon are an ancient family of fish

(Acipenseridae) that have been around since the days of the dinosaurs. The backs and sides of sturgeon are covered with a series of large, bony plates that have earned them the nickname "hackleback" or "shellback." Their shovel- or conical-shaped head, streamlined shape and large pectoral and pelvic fins allow them to move easily and hold their position in the swift water of our larger rivers. The sucker-like mouth is located on the underside of the head. Functioning like a vacuum cleaner, this unique mouth design allows sturgeon to feed by inhaling food items off from the bottom while keeping their bodies parallel to the current.

Worldwide, there are approximately 24 species of sturgeon. Among these are some of the truly gigantic freshwater fish. The white sturgeon, found in Pacific coastal rivers, can approach 20 feet in length and weigh in excess of 1,500 pounds. In Missouri, we have three species of sturgeon. Two of the three species, the lake sturgeon and the pallid sturgeon, are endangered. Fortunately, their numbers are increasing due to hatchery rearing and stocking efforts. The remaining Missouri sturgeon species, the shovelnose, is by far the most common and smallest of the three, seldom reaching 4 pounds. The populations of all three species of sturgeon in Missouri are at varying levels of risk due to overharvest, habitat loss and contaminants. Sturgeon are slow-growing, long-lived fish that can attain ages of 100 years or more. Like many species of fish that live for decades, they reach sexual maturity later in life and, once there, may not spawn but every three to five years. This type of reproductive strategy makes sturgeon populations extremely vulnerable to overharvest. Although shovelnose sturgeon are fairly common, their numbers have been declining. They recently gained protection from commercial harvest throughout the Missouri River and the lower portion of the Mississippi

BLACKENED DRUM RECIPE • SERVES 4-6

6 drum fillets, ½" thick

Olive oil

Cajun seasoning (or see mix recipe)

¼ cup butter

Black pepper (optional)

Lemon (optional)

Place one or two fillets at a time on a shallow dish or plate and lightly rub with olive oil. Dust with Cajun seasoning (either a commercial seasoning or the mix to the right).

In a large cast iron or heavy skillet over medium heat, heat 2 to 3 tablespoons of butter and some olive oil. Place the fillets, seasoned side down, in the hot skillet. Dust the top with additional seasoning so that both sides are coated. Sprinkle on black pepper if desired. Cook until bottom of fillet is blackened, then turn. Continue cooking until the meat flakes. Add more butter or oil if needed while cooking.

Serve with melted butter for dipping or fresh lemons.—*by Martha Daniels*

CAJUN SEASONING MIX

1 tablespoon sweet paprika

2 ½ teaspoons salt

1 teaspoon onion powder

1 teaspoon garlic powder

1 teaspoon ground cayenne pepper

¾ teaspoon ground white pepper

¾ teaspoon ground black pepper

½ teaspoon dried thyme leaves

½ teaspoon dried oregano leaves

Mix seasoning ingredients in a shaker jar.

River, in part because they are very similar in appearance to small individuals of the federally protected pallid sturgeon. Although strong populations of lake sturgeon exist in other states, the Missouri population has declined over the past century due to high commercial harvest in the late 1800s and early 1900s.

To catch a sturgeon, you have to go where the sturgeon are. In Missouri, this means fishing in either the Missouri or Mississippi rivers. From late fall through the winter, and into early spring, sturgeon are frequently found in the deep scour holes associated with the numerous rock dikes, either in or near fast flowing water. As the water warms in the spring and into the summer months, sturgeon can be found in association with sand bars, especially those with water flowing over them. Sand flats, tributary mouths, and tail waters are also likely places to look. As for bait, it's hard to beat the common night crawler, but cut shad, crayfish and shrimp also work well. In order to get your bait down to the sturgeon and keep it there in swift water, you may need to use up to 3 ounces of weight to hold your rig in place. Your hooks should not be too large. A 2/0 to 6/0 circle hook is sufficient. Leave a couple feet of leader between your hook and slip sinker so that the sturgeon can pick up your bait without feeling the weight. Twelve-pound-test monofilament is sufficient if you are after shovelnose sturgeon, which essentially fight no harder than a stick of the same size. If you hook a large lake sturgeon, and expect to land it, you might want to go with heavier line. Sturgeon are not known for ferocious strikes. Often, the only indication you will have that a fish is on the hook will be a gentle pumping action at your rod's tip.

Although it is legal for recreational anglers to pursue and catch sturgeon in Missouri, only the shovelnose sturgeon may be legally harvested. Any lake or pallid sturgeon caught must be released unharmed immediately after being caught. Keep in mind that shovelnose and pallid sturgeon are very similar in appearance, so unless you are absolutely positive you have a shovelnose, it is best to snap a few photographs for evidence and release any sturgeon you catch. To ensure that these fish survive, it is important to follow good handling practices (see sidebar "8 Tips for Handling and Releasing Fish"). Although shovelnose sturgeon are good to eat, their fillets have historically tested high for contaminants including PCBs, chlordane and mercury. The current (2010) recommendation from the Missouri Department of Health and Senior Services suggests eating no more than one serving per month, none for children and none for women who are, or may become, pregnant.

If you do catch a sturgeon, be sure to check for the presence of a tag positioned near the dorsal fin on the fish's back. Biologists from MDC have been conducting research

HOW TO IDENTIFY STURGEON

There are three species of sturgeon in Missouri. The pallid and lake sturgeon are endangered and need to be protected. Use this information to learn the key differences so you can always return pallid and lake sturgeon unharmed to the water immediately. To learn more about sturgeon, visit www.mdc.mo.gov/node/9341.



ENDANGERED LAKE STURGEON

Lake sturgeon have the shortest, roundest snout of the three species. The barbels near their mouth are smooth, rather than fringed or serrated.

ENDANGERED PALLID STURGEON

The belly of a pallid sturgeon is smooth and scaleless. Theirs is the longest snout of the three species, and a line across the barbels would be curved.

SHOVELNOSE STURGEON

The bases of a shovelnose's barbels are in a straight line. The belly of a shovelnose is covered with thin, scale-like plates.

and monitoring our sturgeon populations for the past 15 years, tagging individuals of all three species. Should you catch a tagged sturgeon, record the species, length from the tip of the nose to the fork of the tail, weight, location and date caught and tag number. Please relay this information to us, toll free, at 866-762-3338. This information will greatly assist with the management and restoration of our Missouri sturgeon populations. ▲



Pileated Woodpecker

North America's largest woodpecker nests in the mature forests of Missouri's Ozarks.

LAST SPRING, MY friend Mike Smith called to inform me that he had discovered a pileated woodpecker nest in the forested corridor along the Missouri River trail in Washington, Mo. Mike, who is a good friend, public school teacher and self-taught naturalist, knew I would be interested in photographing the woodpecker nestlings. Anticipating my first question, Mike volunteered, "The nest cavity isn't too high so you can get a good angle for a photograph." Thrilled at such an opportunity, I listened carefully as Mike described the location of the nest in a dead tree near the trail and its orientation to the sun, ever critical to photography. Just as I was about to hang up the phone Mike mentioned, "Oh, you might need some waders because the Missouri River is supposed to start flooding tomorrow!"

The next day I headed to the site on my way home from work, chest waders and camera equipment packed for the adventure. I soon found myself wading around in circles in thigh-deep water looking for the nest or some other sign of the woodpeckers. After 30 minutes I hadn't found the nest and I had yet to hear the loud, cackling call of a pileated woodpecker. I decided to broaden my search to simply a "dead tree." A few minutes later I spotted a bare snag tree, conspicuous in the lush surroundings, with a cavity opening about 15 feet from the ground. My heart skipped a beat when three red heads popped out of the hole and began calling with the unmistakable voices of pileated woodpeckers.

Pileated woodpeckers are North America's largest woodpecker, almost as big as a crow. They are an uncommon, permanent resident throughout Missouri but are most abundant in mature forests of the Ozarks which contain large snag trees suitable for nesting. Pileated woodpeckers are easily recognized by their black body and red, tufted crown. They have a white stripe leading rearward from their eye and another white stripe below their eye that continues along their neck. Males are distinguished from females by the continuation of the red crown to the edge of the bill. Pileated woodpeckers typically eat ants, other insects, nuts and fruit, but I've seen them at backyard feeders where a couple of individuals can finish off a suet cake in one day! Pileated woodpeckers stay with the same mate for life and nesting begins in the spring. Both parents share feeding duties and after the nestlings fledge, the adults continue to feed the young and prepare them for independence, which occurs by fall.

Moments after the nestlings began calling, both parents arrived at the edge of the nest with a fresh supply of food. I took my camera/tripod rig from my shoulder and placed it in the water in preparation for a photograph. At that moment a large carp glanced off my leg and into my tripod. I lunged for the rig as it started to topple, catching it just before the camera and lens hit the water! Disaster averted, I began to photograph the nestlings as they begged for food. The light and angle were not quite perfect but it didn't matter because I was overjoyed to capture an image of the rambunctious youngsters, eager to leave the nest and start life on their own.

—story and photo by Danny Brown







JULIAN STEYERMARK

May is a great time to visit this botanically unique river-hills area in Hannibal.



IF YOU LOVE to bird and botanize, grab your binoculars and field guides, and spend a day at Julian Steyermark Woods CA.

The Conservation Department purchased this scenic, mostly wooded 73-acre tract, located within the Hannibal city limits, from Mrs. H. J. Freiling in 1979. The area was named for Dr. Julian Steyermark, the noted botanist who wrote *Flora of Missouri*, the encyclopedic guide to Missouri's native plants.

The area is a prime example of river hills woodlands bordering the Mississippi River's west bank. Mature sugar maple, basswood, blue ash, black walnut, Kentucky coffee tree, northern red oak and white oak trees dominate the rich woodlands. The understory contains a wide variety of small trees and shrubs, such as pawpaw, bladdernut and ironwood. As you hike, you may notice forest regeneration treatments scattered throughout the area. These help maintain the area's natural diversity.

Because the area is unglaciated, it harbors a wide range of plants that were here before the glaciers, as well as plants that the glaciers pushed south. One example is red-berried elder, common in northern states, but found only along northern Mississippi River bluffs in Missouri.

The forest floor is rich with wildflowers and ferns. An extensive plant survey conducted the same year the Department bought the area found more than 135 plants, some of which are rare, endangered or unusual. These include amethyst shooting star, rose turtlehead, wild sarsaparilla and white-flowering trillium, as well as maidenhair and Christmas ferns.

Mushroom hunting is permitted at the area, and you might have good luck on moist, north-facing slopes. A good guide to Missouri's mushrooms is our new *Missouri's Wild Mushrooms*, available at www.MDCNatureShop.com.

Birders will see and hear a wide variety of woodland songbirds, including bluebirds, cardinals and warblers. Eagles nest in the vicinity along the Mississippi River, so you may see them soaring overhead.

Because Steyermark Woods CA is located within the city limits of Hannibal, hunting is prohibited.

Begin your visit with a trip to the area's webpage (listed below) for driving directions, regulations and a map.

—Bonnie Chasteen, photo by Cliff White



Recreation opportunities: Nature study, wildlife viewing and hiking

Getting there: Travel north of Hannibal on Highway 168, then go one mile east on County Road 410. Plan to park at the pull-off along County Road 410.

For More Information

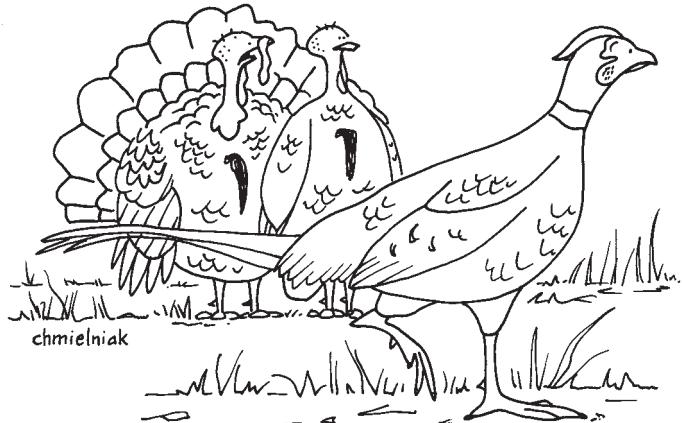
For more information: Call 573-248-2530 or visit www.mdc.mo.gov/a7934.



Hunting and Fishing Calendar

FISHING	OPEN	CLOSE
Black Bass (certain Ozark streams, see the <i>Wildlife Code</i>) impoundments and other streams year-round	5/28/11	2/29/12
Bullfrogs and Green Frogs	Sunset	Midnight
	6/30/11	10/31/11
Nongame Fish Gigging	9/15/11	1/31/12
Nongame Fish Snagging	3/15/11	5/15/11
Paddlefish on the Miss. River	3/15/11	5/15/11
Trout Parks	3/01/11	10/31/11
HUNTING	OPEN	CLOSE
Deer		
Firearms: November	11/12/11	TBA
Furbearers	11/15/11	1/31/12
Groundhog	5/09/11	12/15/11
Pheasant		
North Zone	11/1/11	1/15/12
Southeast Zone	12/01/11	12/12/11
Quail	11/1/11	1/15/12
Rabbits	10/1/11	2/15/12
Squirrels	5/28/11	2/15/12
Turkey		
Spring	4/18/11	5/8/11
Fall	10/01/11	10/31/11
Waterfowl	please see the <i>Waterfowl Hunting Digest</i> or see www.MissouriConservation.org/7573	
TRAPPING	OPEN	CLOSE
Furbearers	11/15/11	1/31/12
Otters & Muskrats	11/15/11	2/20/12

For complete information about seasons, limits, methods and restrictions, consult the *Wildlife Code* or the current summaries of *Missouri Hunting and Trapping Regulations* and *Missouri Fishing Regulations*, *The Spring Turkey Hunting Regulations and Information*, *the Fall Deer and Turkey Hunting Regulations and Information*, *the Waterfowl Hunting Digest* and the *Migratory Bird Hunting Digest*. For more information visit www.MissouriConservation.org/8707 or permit vendors.



"Tell me that's not a toupee."

Contributors

MAX ALLEGGER coordinates MDC's quail and grassland bird conservation programs. His experience in upland wildlife management and agriculture fuels his interest in conservation that benefits both people and native species. Max lives near Clinton and enjoys hunting, fishing, gardening and exploring with his son.



GLADYS J. RICHTER is an interpretive freelance writer who lives near Richland with her family. She enjoys a variety of outdoor activities, including fishing, hunting, hiking and gardening with native plants. Prior to becoming a freelance writer, she worked in the Department's Outreach & Education Division in Joplin.

GREG STONER has been an MDC fisheries management biologist since 1990. He has been stationed at Lake of the Ozarks since 1991. Greg and his family live on the Niangua Arm of Lake of the Ozarks outside of Camdenton. Greg is an "all species" angler—it doesn't matter as long as it pulls back!



TAMIE YEGGE has worked for the MDC for 21 years. She has a B.A. in Forest, Fish and Wildlife Resources and has been manager of Powder Valley Conservation Nature Center in Kirkwood, for 14 years. She grew up camping, fishing and hiking and now spends her "spare" time enjoying the same activities with her own family.

WHAT IS IT?

Whitetail deer

On the back cover and right is a whitetail deer with velvet-covered antlers by Jim Rathert. Sometimes incorrectly referred to as horns, deer antlers are not the same as horns. Horns are a product of the skin that grow continuously and are not shed. Antlers are bony growths that are shed and regrown annually. Growth occurs at the tip of the antler rather than at the base, as with horn growth. During the spring and summer, antlers grow with an outer coating of skin called velvet. Covered by a dense mat of fine hair, the velvet is laced with blood vessels that supply it with nourishment to grow. The velvet dries up and is shed in late summer or early fall to expose a hardened bony antler.



AGENT NOTES

Responsibility is key for outdoor users.

AS THE FATHER of two teenagers, I can tell you the word “responsibility” is used frequently in our household. One of the things my wife, Kelley, and I try to stress to our kids is that as they get older, life will place more responsibility on them to know what they should or should not do. Ultimately, we all eventually decide how we act based on our system of beliefs, and a system of laws.

In the spring and summer months, the level of fishing activity on our public waters increases greatly. Many times in my more than 20 years as a conservation agent, I have contacted people fishing who ask this question: “Hey, you wouldn’t happen to have a ruler with you, would you?” This question usually tells me the person I’m contacting has at least one fish in possession which has not been measured to ensure the fish is of legal length. It also tells me the person is aware there may be a length limit established for that particular body of water and species of fish, but they probably don’t know what the length limit actually is, or they haven’t brought some sort of measuring device with them.

Length limits on fish are set after taking many factors into consideration. Different bodies of water may

require different length limits on particular fish species in order to help ensure a stable, healthy and prosperous fish population. A key responsibility for the outdoor user is to know what length limits apply to the body of water and particular species of fish they seek.

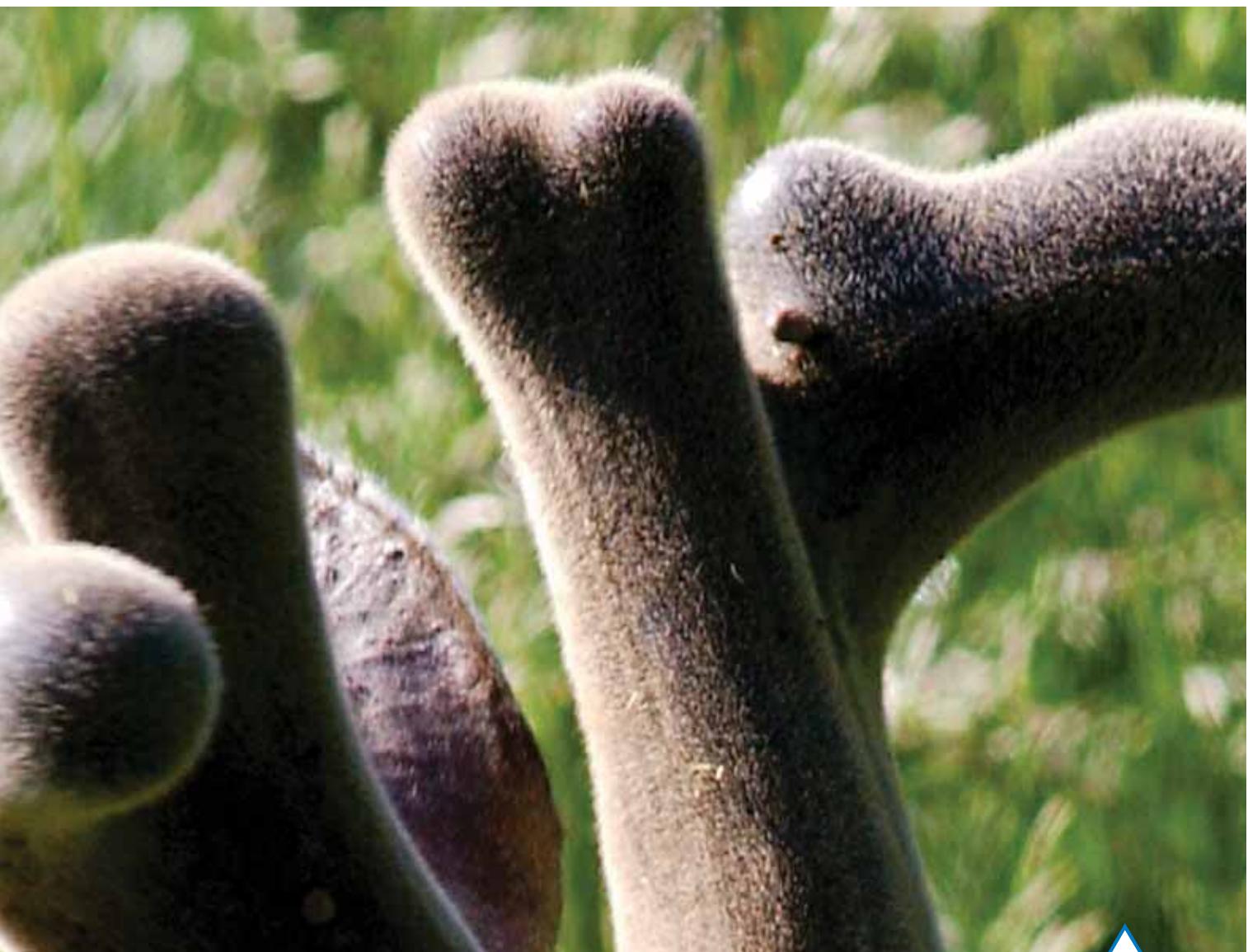
The Missouri Department of Conservation tries to ensure people have easy access to regulation information. Printed regulations are available at permit vendors statewide. On our website, you can find fishing regulations at www.mdc.mo.gov/node/3104 and hunting and trapping regulations at www.mdc.mo.gov/node/2454. A phone call to your local conservation agent can also get your regulation questions answered before you go afield. Don’t let a lack of information keep you from responsibly enjoying Missouri’s great outdoors.



Scott Bumgardner is the conservation agent for Madison County. If you would like to contact the agent for your county, phone your regional Conservation office listed on Page 3.

WHAT IS IT?

Our photographers have been busy exploring the intricacies of the Missouri outdoors. See if you can guess this month's natural wonder. The answer is revealed on the inside of this back cover.



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www.MissouriConservation.org/15287

Free to Missouri households

